US Army Corps of Engineers®
Engineer Research and Development Center

Development and Application of Imagery Systems

Description

ERDC engineers design, develop, contract, integrate, test, and sustain imagery systems on a reimbursable basis. Imagery systems include ground stations that task, process, exploit, and disseminate digital imagery. These systems play a vital role in ensuring reliable, secure communications, intelligence, and battlefield support.

Capabilities

The Topographic Engineering Center (TEC) has personnel with experience and expertise in imagery applications, laboratory testing, systems engineering, and tactical applications. Imagery related expertise includes:

- Commercial Off-The-Shelf (COTS) based Imagery Exploitation Electronic Light Tables (ELTs)
- Secondary Imagery Dissemination
- Cross-INT (Measurements and Signatures Intelligence [MASINT])
- Graphical Situation Display (GSD)
- Common Imagery Processor (CIP)
- All National Geospatial Agency (NGA) components such as:
  - Imagery Product Library (IPL)
  - Imagery Exploitation Support System (IESS)
  - Dissemination Element (DE)
  - Requirements Management System (RMS)
  - Direct Feed (DF)-IPL.

TEC also offers experience and expertise in the following specific systems:

- Tactical Exploitation System (TES)
- Modernized Imagery Exploitation System (MIES)
- Enhanced Tactical Radar Correlator (ETRAC)
- Tactical Radar Correlator (TRAC).

TEC provides critical imagery expertise to outside customers for state-of-the-art imagery ground systems. Experts with experience in key Army ground stations provide cradle-to-grave support for intelligence assets worldwide. TEC collects and uses national, tactical, and commercial imagery, and its extensive communications capabilities, to field systems that are critical to support today's Army.

TEC also offers communication experience in multiple pathways for receipt and transmission of data such as:

- UHF Satellite Communications (SATCOM) and Line of Sight (LOS)
- Demand Assigned Multiple Access Synthesized UHF Computer Controlled Equipment Sub-System (DAMA SUCCESS)
- CHARIOT S-Band (Portable S-Band Receive/Transmit Terminal)
- Tri-Band SATCOM System (TSS) High Rate (X, Ku, C)
- Modularized Interoperable Surface Terminal/Common Data Link (MIST/CDL)
- Imagery Support Server Element (ISSE) Guard.

Supporting Technology

TEC's facilities include an imagery laboratory with secure Joint Worldwide Intelligence Communications System (JWICS) and Secret Internet Protocol Router Network (SIPRNET) communications connectivity. Imagery sources include classified national technical means and unclassified commercial sources. TEC has (or has access to) expertise and equipment for component beta testing, training, commercial product evaluation, throughput analysis, utility assessment, and the production of test data for other programs.

Benefits

Over the years TEC's Department of Defense (DOD) customers have benefited in terms of problem avoidance, cost savings, and increased efficiencies in the development and sustainment of imagery systems that contribute to critical Army intelligence ground systems.

Success Stories

ERDC recently collaborated with program managers from the Army Space Program Office to provide technical expertise to the Army Tactical Exploitation of National Capabilities (TENCAP) program for intelligence processing systems deployed with Army Divisions and Corps during Operation Iraqi Freedom. Four TESs were deployed to Kuwait and Iraq to support tactical forces. ERDC engineers provided systems engineering and technical support to task, process, exploit, and disseminate National and airborne imagery through the TES. These efforts ensured that deployed Army units had systems to receive near-real-time imagery to perform mission planning and to receive timely, accurate indications and warnings.

ERDC POC(s)

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